



Chapter 1

Cancer in South Carolina

South Carolina Cancer
Prevention and Control

Chapter 1. Cancer in South Carolina

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Cancer touches all of our lives. One in three Americans will be diagnosed with cancer during their lifetime, and it will affect two out of every three American families.

One of the most devastating aspects of cancer is the stigma of fatalism that it carries. For years it was believed that cancer was a death sentence — that once someone was diagnosed with this disease, no matter what type, no matter what stage, they were beyond saving. Today this idea is powerfully refuted by the lives of more than eight million Americans who are survivors of cancer.

A guiding strategy in developing this five-year cancer plan was to first identify the cancers which are the most deadly in this state, and of those, to focus on the cancers which we can do something about. In South Carolina, as in the United States, four cancers: lung, colorectal, breast, and prostate, are responsible *for more than half of all cancer deaths*. (Table 1.1)

Table 1.1 Cancer Deaths: The Top Four Killers
South Carolina 1992-1996

Type of Cancer	Percentage of Total Cancer Deaths	Number of Deaths
Lung	30%	10,570
Colorectal	10%	3,710
Breast Cancer	8%	2,817
Prostate Cancer	7%	2,630
Top Four Cancers	55%	19,727

Number of deaths represents combined years 1992-1996. Source: SC DHEC Division of Biostatistics, Office of Public Health Statistics and Information Systems.

We do not have a cure for cancer. Our greatest hope in reducing the number of lives lost to this disease is to target cancers which can be prevented or can be treated if they are detected at an early stage. The top four killers, lung, colorectal, breast, and prostate, are all cancers we can do something about.

Lung cancer deaths could be cut by as much as two thirds within a few decades if we can reduce the number of people who smoke. Breast, colorectal and prostate cancers can be detected at an early stage through routine, inexpensive, tests. People can live for years after a diagnosis of these diseases if they are caught early enough. (Table 1.2).

Table 1.2 What We Can Do To Save Lives in South Carolina

Cancer Type	Potential for Prevention/Detection	Survival Rates
Lung	Prevention: Tobacco-use cessation. No practical early detection methods.	49% Local Stage 02% Distant Stage
Colon	Prevention: Nutrition and exercise. Early Detection: FOBT, sigmoidoscopy	93% Local Stage 08% Distant Stage
Breast	Early Detection: Mammography and Clinical Breast Exams.	97% Local Stage 21% Distant Stage
Prostate	Early Detection: Prostate Specific Antigen (PSA) and Digital Rectal Exam (DRE).	100% Local Stage 31% Distant Stage

Survival rates are five-year relative survival rates, adjusted for normal life expectancy.
Based on cases diagnosed 1986-1993 followed through 1994, American Cancer Society, 1998.

The South Carolina Cancer Control Advisory Committee has targeted two additional cancers: cervical cancer and skin cancer for intervention. Cervical cancer is top priority because our death rates for this cancer are among the highest in the nation – *for a disease which is completely curable when detected early*. Skin cancer is a top priority because of the alarming rise in incidence rates and enormous potential for public health intervention.

The chapter which follows is an overview on cancer in South Carolina. The first section of this chapter provides a one-page summary on each of the six priority cancers: lung, colorectal, prostate, breast, cervical and skin. This section includes death rates, survival rates, and costs for

hospitalization. We also discuss what we can do, through prevention or early detection, to save lives from each of these cancers. The second section of the chapter looks at how South Carolina compares to the rest of the United States in cancer deaths — for several cancers, South Carolina leads the nation in cancer deaths. The third section of this chapter is a preliminary review of the cancer mortality gap between blacks and whites in our state.

This information is intended as an overview only; a comprehensive report on cancer in South Carolina, which will focus on incidence rates and include county by county data, will be available from the SC Central Cancer Registry in early 1999.

Lung Cancer

Lung Cancer is the most common cause of cancer death in South Carolina. This single disease kills more South Carolinians every year than homicide, suicide and accidents combined.

Cigarette smoking is the major cause of lung cancer and far outweighs all other risk factors in its effect. Nearly 85% of lung cancer cases are attributable to smoking.

Lung cancer is the leading cause of cancer mortality in white men, black men, and white women in this state, and is second only to breast cancer for black women. (Figure 1.1, 1.2)

Although the mortality rate in men began to plateau in the late 1980's and has subsequently declined, the lung cancer mortality rate for American women has increased at an extraordinary rate. Between 1960-62 and 1990-92, lung cancer mortality rates for women increased 438%.

Hospitalization charges in 1996 from lung cancer were almost \$40 million in South Carolina. It is estimated that the cost to society for the care of patients with lung cancer in America is 4.5 billion dollars per year.

Lung cancer statistics are grim. And though deaths due to lung cancer are largely preventable, change is not easy – nicotine is one of the most powerfully addictive substances on the market.

But there are also statistics which show that people can change. In South Carolina, 565,000 adults have stopped smoking and a 1995 survey found that 73% of current smokers want to stop (CDC, 1996; BRFSS 1995). A central goal of this five-year plan is to develop resources and policies to help them stop.

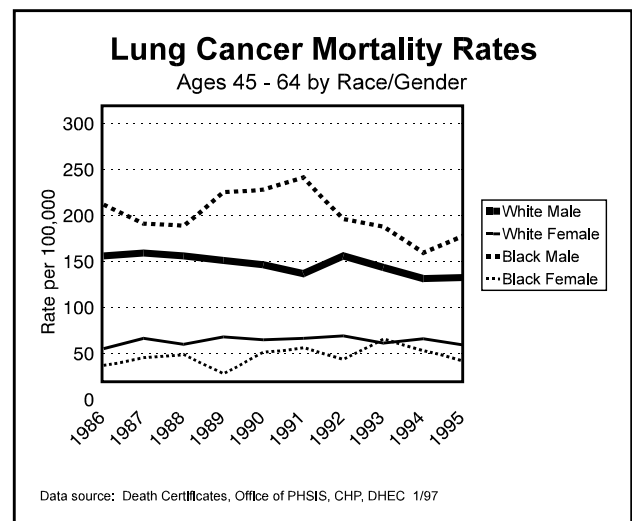


figure 1.1

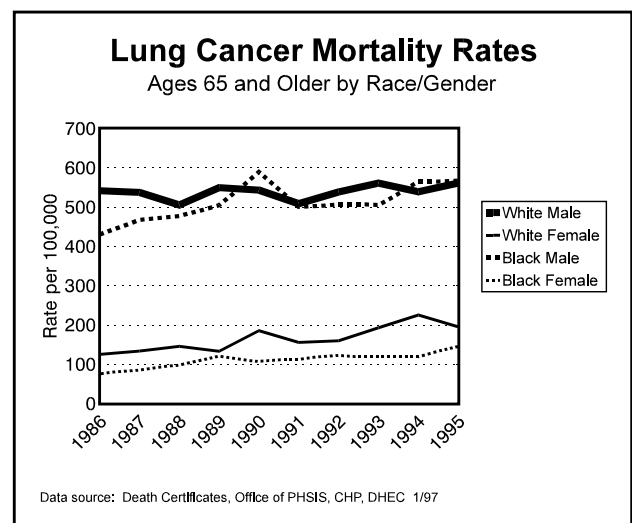


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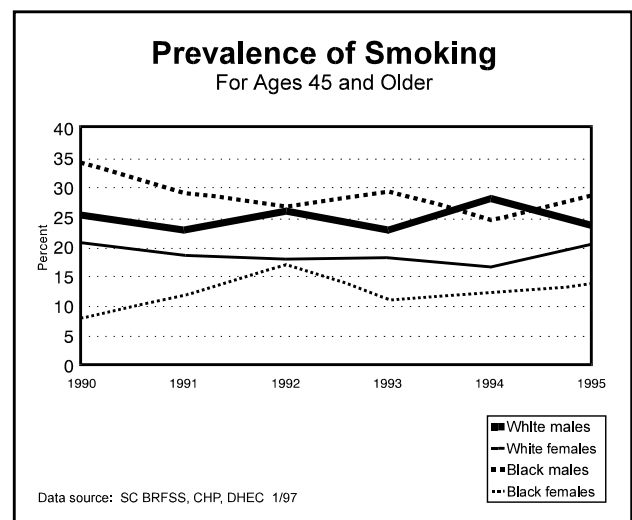


figure 1.3

Colorectal Cancer

Cancer of the colon and rectum will afflict 4% of the people in the United States during their lifetime and is the second leading cause of cancer death in South Carolina. Colorectal cancer mortality is highest in the black male population (28.6 per 100,000 population) followed by white men (21.8 per 100,000), black women (18.6 per 100,000), and white women (14.1 per 100,000). (Figure 1.4, 1.5)

Risk factors include having a first degree relative with colorectal cancer and/or having familial polyposis or ulcerative colitis. Possible behavioral risk factors include a sedentary lifestyle and a diet high in saturated fat, and low in vegetables and grains. (Figure 1.6)

Survival depends crucially on the stage at which the disease is diagnosed. Five-year survival rates range from 91% at the earliest stage to 8% at the advanced stage. South Carolina hospitalization charges for colorectal cancer were more than \$31 million in 1996, with an average cost of \$16,994.

Early detection, through Fecal Occult Blood Testing (FOBT), Digital Rectal Exams, sigmoidoscopy, colonoscopy, and barium enema x-rays can help identify precancerous polyps and identify this disease while it is still at a curable stage.

There is a significant gap, however, between available medical technology and preventive behavior: a 1992 National Health Interview Survey of adults 50 and over showed that only 26% of the surveyed group had had an FOBT in the past 3 years, and 17% had never heard of the test. These statistics illustrate the need to educate both health care providers and the public about these life-saving tests.

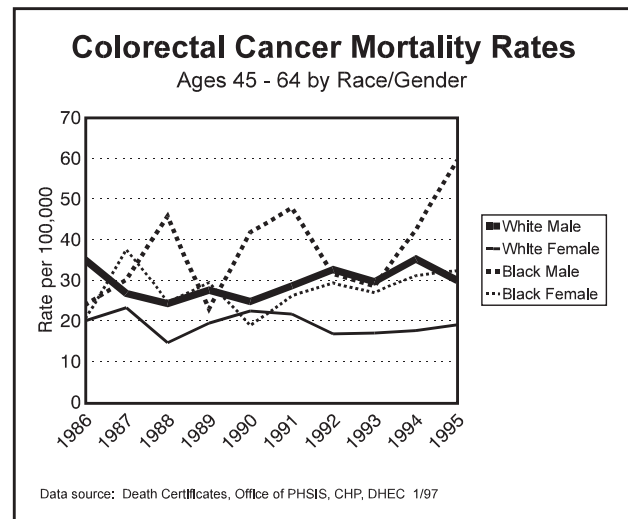


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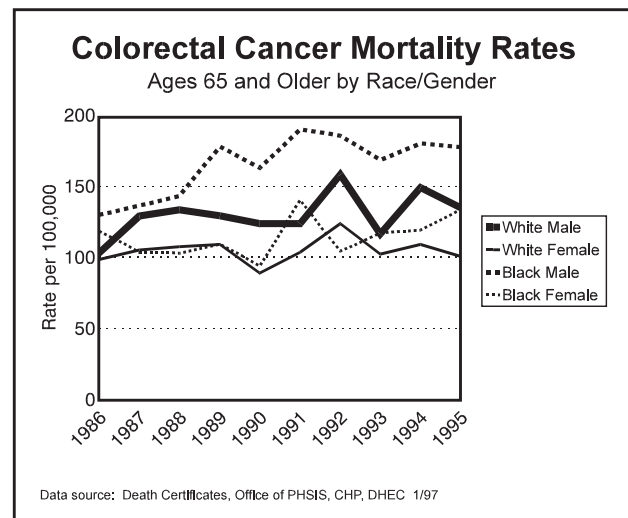


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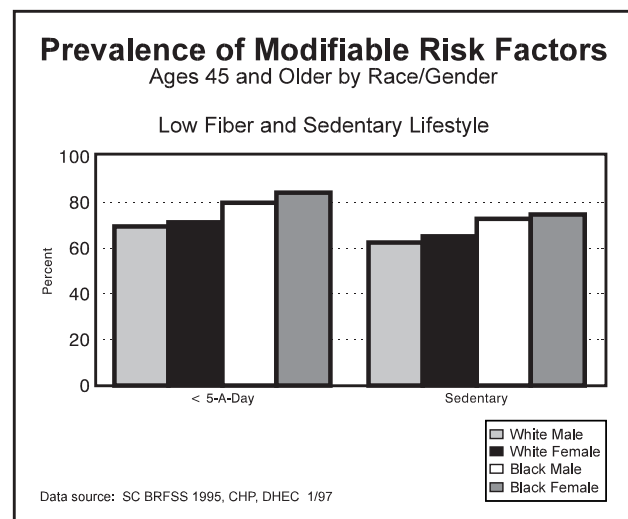


figure 1.6

Breast Cancer

Breast cancer is the most commonly diagnosed cancer in American women, and the second leading cause of cancer death. One woman in eight will develop breast cancer in her lifetime.

In South Carolina, more African-American women die each year of breast cancer than any other cancer. Their mortality rate is 29.2 deaths per 100,000 women. For white women, breast cancer ranks second only to lung cancer and the corresponding mortality rate is 24.1 deaths per 100,000 women. (Figure 1.7, 1.8)

Five-year survival rates for breast cancer range from almost 100% for non-invasive or *in situ* cancer, 97% for localized cancer, 75% for cancer that has spread regionally, to 20% for distant cancers. The survival rate for African American women is 15% lower than for white women and, although black women have a lower incidence of breast cancer, they are twice as likely to die within the first five years of diagnosis.

The most powerful weapon against breast cancer is early detection through mammograms, clinical examination, and self examination. The American Cancer Society (ACS) recommends mammograms every 1-2 years for women aged 40-49 and every year for women 50 and over.

Women who are over 40, poor, rural, less educated and/or African American are the least likely to receive testing. (Figure 1.9) The Best Chance Network (BCN), a joint effort of DHEC and ACS, funded by the Centers for Disease Control was created to reach these women. Since inception, BCN has provided over 55,000 breast and cervical cancer screenings to underserved women in South Carolina.

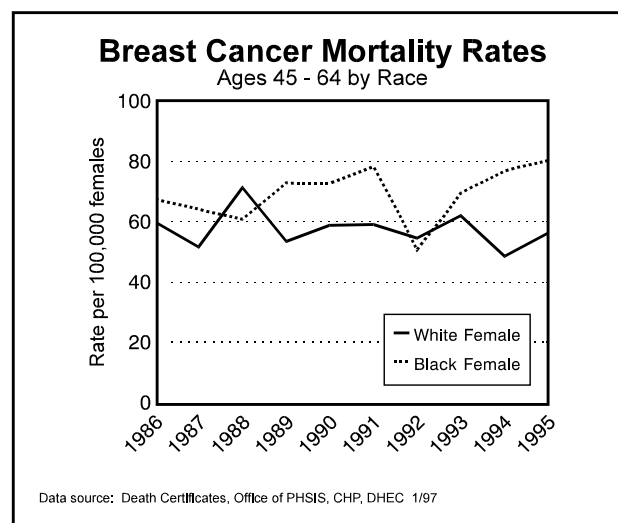


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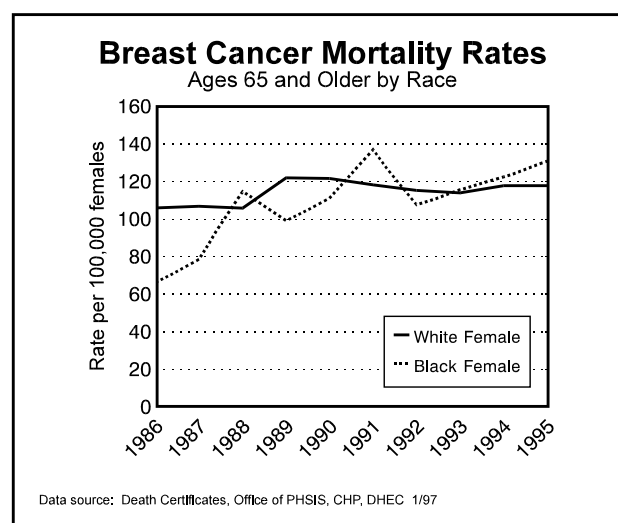


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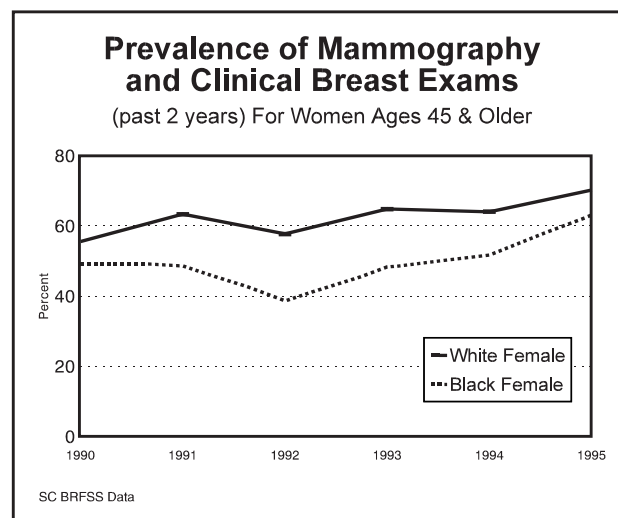


figure 1.9

Prostate Cancer

Prostate cancer is the most commonly diagnosed cancer among American men after skin cancer and the second leading cause of cancer death in men after lung cancer. More men die of prostate cancer in South Carolina than in any other state in the union.

The number of men diagnosed with prostate cancer in the US has increased dramatically in the past fifteen years, due largely to new detection techniques, such as Prostate Specific Antigen (PSA) testing. From 1980 to 1990, prostate cancer incidence rates increased 65%.

African American men, who have one of the highest incidence rates of prostate cancer in the entire world, are hit particularly hard by this disease. While incidence rates are not yet available, the death rate for black males in SC, at 62.8 deaths per 100,000, is *more than twice* the rate of white males, at 27.5 deaths /100,000 (Figure 1.10, 11). The causes of prostate cancer are not well understood, although some researchers believe that a high-fat diet may be implicated. (Figure 1.12).

As with other cancers, survival is related to the progress of the disease at diagnosis. When prostate cancer is caught early, survival rates are excellent: the five-year survival rate is 100% at the localized stage compared to 31% if the cancer has spread to a distant site in the body. Hospitalization charges for prostate cancer were almost \$26 million for South Carolina in 1996.

National leaders such as General Norman Schwarzkoph, Intel founder Andy Grove, and Senator Robert Dole, have all battled this disease and survived. The challenge ahead, for doctors and the public health community, is to give the average South Carolina man the same chance for survival as our national leaders.

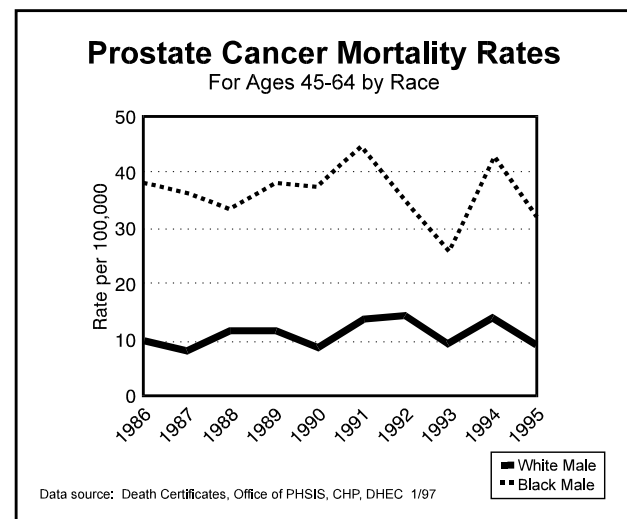


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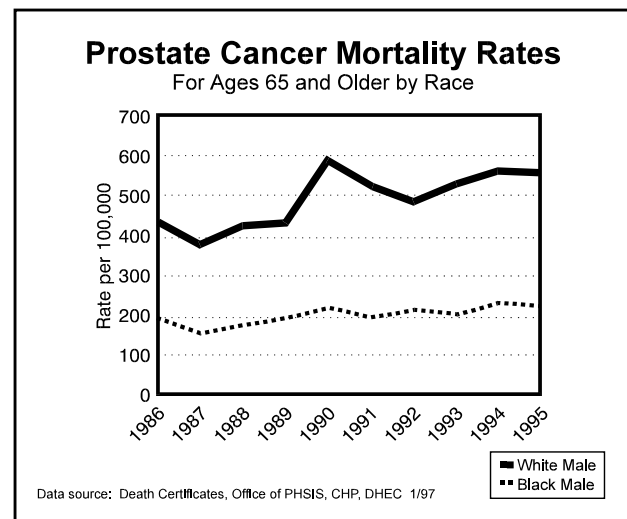


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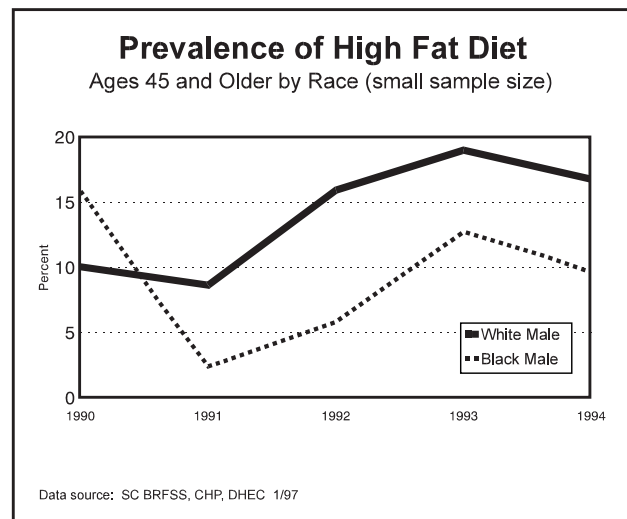


figure 1.12

Cervical Cancer

South Carolina has the fourth highest mortality rate in the nation for cervical cancer, a disease which is 100% curable, if found in its earliest stages.

South Carolina's cervical cancer death rates have been declining in both white and non-white women. However, the rate among black women, at 7.2 deaths per 100,000, continues to be nearly three times greater than white women, at 2.5 deaths per 100,000. (Figure 1.13)

Survival rates for this disease range from 92% when the cancer is diagnosed early to 9% when the cancer has spread to a distant site in the body. Total hospitalization charges were more than \$2.6 million for cervical cancer in 1997. The average cost per patient was \$10,398.

African American women are at high risk for cervical cancer, along with women with a history of genital HPV of certain types. Cervical cancer is also prevalent among women who have sexual intercourse at an early age; have been pregnant more than five times, starting at an early age; and who have had multiple sexual partners, or partners who have had multiple sexual partners.

Cervical cancer deaths can be largely explained by the lack of early detection. Even though screening indisputably saves lives and a Pap smear examination costs as little as \$75, there are women in South Carolina who are still not being tested (Figure 1.14).

Women who are over 40, poor, rural, less educated and/or African American are the least likely to receive testing. The Best Chance Network (BCN), a joint effort of DHEC and ACS, funded by the Centers for Disease Control, is designed to reach these women. Since inception, BCN has provided over 55,000 breast and cervical cancer screenings to underserved women in South Carolina. (Figure 1.15)

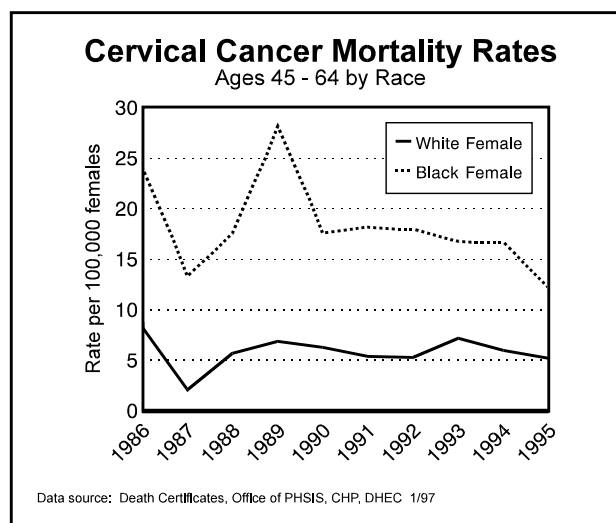


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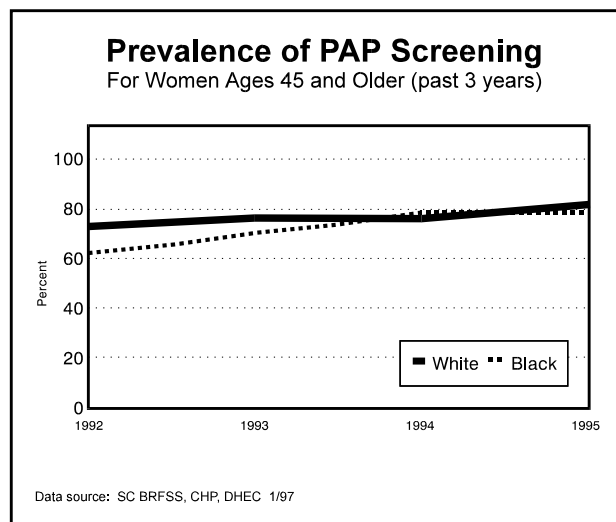


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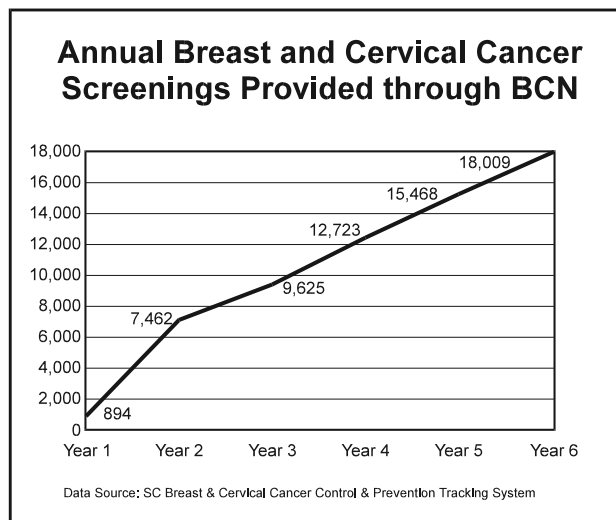


figure 1.15

Skin Cancers

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Skin cancer, the most common type of cancer in the United States, is a largely preventable disease. There are three forms of this cancer: basal cell carcinoma, squamous cell carcinoma, and melanoma.

An estimated one million new cases of basal cell or squamous cell carcinoma will be detected this year; approximately 40,000 new cases of melanoma will be diagnosed. Melanoma accounts for about 75% of skin cancer deaths. One person an hour dies from malignant melanoma.

Skin cancer incidence rates are increasing at an astonishing rate, both in the US and worldwide. In 1930, the chances of an American developing skin cancer was 1 in 1500. By the year 2000, researchers have estimated that the risk will be 1 in 75. Skin cancer rates are rising faster than any other cancer for men and are second only to lung cancer in women.

The primary risk factor for skin cancer is too much sun, particularly for lighter skinned people, who are predisposed to this cancer. Other risk factors are a family history and/or personal history of skin cancer.

Non-melanoma skin cancer is highly curable if treated early. Five-year relative survival rates for malignant melanoma range from 94% at the localized stage, to 60% for regional disease to 16% for cancer which has spread to a distant site in the body.



Children are particularly vulnerable to the effects of sun exposure. It is estimated that children receive three times the annual sun exposure of adults and that 80% of lifetime sun exposure generally occurs before the age of 18. Parents and caregivers can have a tremendous impact on the amount of sun exposure a child receives, and consequently, on their risk of cancer over a lifetime.

Table 1.3. SC Cancer Deaths vs. US Cancer Deaths

Cancer Type	SC vs US	SC Men	SC Women
Prostate	2	2	—
Cervical	4	—	4
Oral/Pharynx	3	3	12
Larynx	12	5	20
Esophagus	4	4	27
Multiple Myeloma	2	4	2
Pancreatic	7	14	10
All Sites	20	6	33

Based on SEER Cancer Statistics Review 1973-1994. Rankings are based on age adjusted cancer mortality rates by state, 1990-1994. A ranking of 1 highest; 51 is lowest.
(Prepared by SC Central Cancer Registry, 1997)

How South Carolina Cancer Rates Compare to the United States

South Carolinians' death rates from some cancers, including prostate and cervical, rank among the highest in the nation. (Table 1.3.)

Risk Factors for these Cancers

Prostate and Cervical Cancer, which are top priorities in this state, were discussed previously in this section and will be discussed in more detail in the Detection Chapter.

Oral Cancer. Oral cancer is related to behavioral risk factors, such as smoking, dipping smokeless tobacco and drinking alcohol.

There are no routine screening tests available for oral cancers, although these cancers can often be detected through careful dental or physical examinations. (ACS, 1997)

Esophageal Cancer. Those who are at highest risk of developing esophageal cancer include people over 60; males, especially African-Americans; and long-term smokers or drinkers. Smoking and drinking alcohol are especially dangerous in combination. There are no routine screening tests for esophageal cancer.

Multiple Myeloma. Scientists do not know what causes multiple myeloma and the course of the disease varies widely among those who have it. Those who are at highest risk for multiple myeloma include the elderly; African-Americans, who develop the disease twice as often as whites; and people who have been exposed to materials such as asbestos, benzene, pesticides, and others used in rubber manufacturing. (ACS, 1997)

Pancreatic Cancer. Those who are at greatest risk for pancreatic cancer include people between 60 and 80 years of age; men (slightly more common than women); people who smoke; workers exposed to solvents and petroleum compounds; and people with a history of pancreatic cancer in a close family member. (ACS, 1997)

Table 1.4a. Cancer Deaths for Men
South Carolina Combined Years 1992-1996

White Male	Number	Rate	Black and Other Male	Number	Rate
Lung	5,352	85.5	Lung	1,720	95.1
Prostate	1,526	27.5	Prostate	1,104	62.8
Colorectal	1,320	21.8	Colorectal	521	28.6
Pancreas	594	9.6	Esophagus	343	19.2
Leukemia	531	8.9	Stomach	290	16.0
Non-Hodgkins	500	8.1	Pancreas	264	14.6
Brain	432	6.8	Oral/Pharynx	246	13.3
Bladder	366	6.3	Leukemia	155	8.2
Kidney	353	5.6	Mult. Myeloma	147	8.1
Oral/Pharynx	310	5.0	Kidney	106	5.7
Esophagus	311	4.9	Larynx	98	5.6
Stomach	288	4.8	Liver	100	5.4
All Cancers	14,211	232.4	All Cancers	5889	325.4

Table 1.4b Cancer Deaths for Women
South Carolina Combined Years 1992-1996

White Female	Number	Rate	Black and Other Female	Number	Rate
Lung	2,831	33.4	Breast	815	29.2
Breast	2,002	24.1	Lung	666	24.2
Colorectal	1,323	14.1	Colorectal	545	18.6
Ovarian	695	8.2	Pancreas	353	12.0
Pancreas	675	7.4	Ovarian	218	7.6
Non-Hodgkins	493	5.3	Cervical	203	7.2
Leukemias	441	5.0	Uterine	194	6.7
Brain	322	4.1	Stomach	183	6.0
Kidney	247	2.8	Mult. Myeloma	162	5.6
Mult. Myeloma	240	2.7	Leukemia	121	4.0
Cervical	203	2.5	Esophagus	80	3.0
Uterine	222	2.4	Non-Hodgkins	81	2.9
All Cancers	11,933	136.6	All Cancers	4503	157.5

Based on SC Mortality Data, 1992-1996. Number of deaths represents combined total for 5-year period. Rates are per 100,000 population, age-adjusted to 1970 US standard population. "Black and other" includes all non-white populations (96% Black; 4% Hispanic, Asian, and other). Prepared by the SC Central Cancer Registry.

Racial and Gender Differences in Cancer Deaths

Although cancer can strike anyone – young or old, rich or poor, black or white, there are significant disparities in death rates among different groups of people in South Carolina. (Table 1.4)

African American men have the highest death rates from cancer (325.4 per 100,000 population), followed by white men (232.4), black women (157.5) and white women (136.6). Disparities in death rates from individual cancers are noted below:

Lung Cancer rates for both white men and black men are both considerably higher than for white or black females.

Esophageal Cancer ranks 4th in cancer mortality for African-American men. Their death rate from this cancer is almost four times as high as the death rate for white men and six times higher than that of African-American women. Esophageal cancer is considered to be a rare cancer; it accounts for less than 2% of all cancers in the United States.

Stomach Cancer is also more likely to affect African-American men than others – their death rate from the disease is two and one-half times higher than African-American women, three times the rate of white men, and eight times that of white women.

Bladder Cancer mortality rates are higher for white men, at 6.3 per 100,000 population, than any other group. Bladder cancer ranks 8th in cancer mortality for white men in South Carolina. Although incidence rates are not yet available for South Carolina, bladder cancer is the 4th most common cancer in American men

and 8th most common cancer in American women.

The Uterine Cancer mortality rate for black women, at 7.2 deaths per 100,000, is nearly three times greater than that of white women, at 2.5 deaths per 100,000.

Ovarian cancer is the 6th deadliest cancer in South Carolina overall and is among the top ten cancers for both white women (4th) and black women (5th). The mortality rate for white women, 8.2 per 100,000 population, is higher than black women at 7.6 deaths per 100,000 women.

Risk Factors for these Cancers

Lung Cancer has been discussed previously in this section and will be covered in detail in the Prevention Chapter and Cancer Care Chapter of this report. *Esophageal Cancer* has also been discussed earlier in this chapter.

Stomach Cancer has been declining rapidly in the past decades, due mainly to improved methods of food handling and refrigeration. According to the American Cancer Society, those at highest risk for stomach cancer include people between 50 and 70; males; people who eat pickled or highly salted foods; people with pernicious anemia; and people who have had *Helicobacter pylori* infection. There are no routine screening tests used for stomach cancer in this country.

Bladder Cancer is more common among white men, smokers; people between the ages of 60 and 80; and among workers exposed to industrial chemicals such as benzidine and beta-naphthylamine, aniline dyes, and organic chemicals used or produced in rubber manufacture, leather treatment and paint production. No routine screening tests are available for bladder cancer.

Ovarian Cancer. Women who are at higher risk of developing ovarian cancer are those with a first degree relative (mother, sister, or daughter) or second degree relative (grandmother or aunt) who has had the disease. (*See the Genetics Chapter of this document for more detail.*) Other risk factors include women who have had no children, who delayed childbirth until after age 35; and women with a history of breast or endometrial cancer. No routine screening tests are currently available for ovarian cancer.

Uterine Cancer.

The causes of uterine cancer are unknown. Researchers believe that prolonged exposure to estrogen, without the balancing effects of progesterone is implicated.

Uterine cancer is higher in women who have not had children, who took estrogen replacement therapy without progesterone (common in the 1970's), and who experience late menopause. Obesity also is a risk factor. There is no general screening test for uterine cancer.

It is difficult to design intervention programs for this group of cancers (esophageal, stomach, bladder, uterine, and ovarian), because there are no routine screening tests and also because we do not know enough about who gets the cancers and what regions need the most help. The new

South Carolina Central Cancer Registry (SCCCR) will begin to give us this information this year, and can help build the foundation for public education/outreach programs to address these discrepancies in cancer death.

Owing to the absence of the SCCCR in the past, the data in this report and other assessments are based largely on mortality information (i.e., deaths). In years past, these data were regarded

as generally consistent with the overall cancer patterns. Yet in recent years, with the improvement in detection and treatment, they are less representative. Mortality data may describe the populations where less access to early detection is occurring, or

where there are medically underserved populations.

But mortality data does not provide a perspective on the number of persons diagnosed with cancer who are successfully treated and who survive their disease. The SCCCR will provide exactly that data, as well as much more, e.g., treatments received. These data on cancer deaths (not cancer deaths alone) will provide the 'full picture' and serve as a great benefit for evaluating successful screening programs and educational initiatives.

